

COMMON GOALS, SHARED ACTION

THE EUROPEAN ALUMINIUM INDUSTRY'S
SUSTAINABILITY ROADMAP TOWARDS 2025



EUROPEAN ALUMINIUM

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ALUMINIUM INDUSTRY

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A VISION FOR THE ALUMINIUM INDUSTRY

Aluminium is a solution to many of the societal and economic challenges that Europe faces as it seeks to build a competitive and sustainable industrial sector. Hence, aluminium is a key enabler of Europe's transition to a low carbon and resource efficient economy. On this basis, the European aluminium industry has developed a roadmap of how this ambition can become reality.

The fruit of long reflection by the aluminium industry - and the subject of consultation with stakeholders around Europe - the European Aluminium Industry's Sustainability Roadmap combines concrete commitments with a voluntary approach.

Encompassing alumina and primary production through to semi-fabrication, end-use products and recycling, the scope of the roadmap is broad. It targets everything from raw materials sourcing to product design to employee welfare and community engagement, setting out an ambitious journey to sustainability commitments that covers all aspects of the aluminium value chain. The Sustainability Roadmap is a significant milestone for European Aluminium's member companies, and a tool to proactively engage with political, NGO and community stakeholders.

Getting the most from aluminium requires a collective effort. An inclusive approach is the best way to harness all the societal benefits that our material can deliver, in other words The Aluminium Effect.

A long-standing commitment to sustainability

Sustainability has always been a deeply ingrained concept in the everyday activities of the European aluminium industry: European Aluminium has been monitoring economic, social, environmental and recycling performance for almost 20 years.

Since 1997 European Aluminium has been monitoring the industry's performance and in 2002 started regularly reporting on an extensive list of Sustainable Development Indicators (SDI) related to the production and transformation of aluminium. Then in 2010 further indicators covering the main uses of aluminium, including the recycling rates, were added.

The results of the SDI reports, publicly available on the association's website, bear witness to the remarkable progress the aluminium industry has made, including lowering its energy consumption, driving energy efficient solutions in mobility, packaging and construction, tackling waste and pushing our impressive recycling rates ever higher. Still, member companies remain strongly committed to continuous improvement.

Bearing in mind that a complete life-cycle approach is needed for an adequate assessment, and to evaluate the trade-offs, the aluminium industry's goal is to maximise its sustainability performance through all stages of the products' life cycles, from production to the use-phase and subsequent recycling.

From food packaging to airliners, aluminium's unique properties, such as endless recyclability, amazing versatility and a winning combination of lightness and strength, allow it to respond to the fast-paced demands of our contemporary society, without compromising the ability of future generations to meet their needs.

Europe's agenda for growth

The European aluminium industry's Sustainability Roadmap coincides with a moment of great opportunity for Europe, a moment of change in which leaders are putting jobs, growth and investments at the top of the agenda in order to restore and enhance industrial competitiveness.

Reindustrialisation will be largely dependent on research and innovation, energy efficiency and renewable energy, including recycling.

The Aluminium Effect resonates strongly with such objectives. With a supportive legislative environment, the aluminium industry can do even more to help Europe reach its goals.

Get involved

The European aluminium industry's Sustainability Roadmap is designed to support Europe to meet its growth and sustainability objectives. Partnerships are essential to ensure a successful transition to a sustainable future, and with this in mind the aluminium industry has already shared its vision and voluntary commitments with a broad range of stakeholders, and together with them has started discussing how to define the implementing paths.

The present result is therefore a starting point to an ambitious journey, and while we are extremely grateful for the inputs received so far, we are committed to keeping this process open and transparent throughout the next decade: by regularly assessing and reporting the progress towards the roadmap's targets, and by exploring further areas of development with all relevant stakeholders who wish to engage with us.

Brussels, April 2015

THE ALUMINIUM EFFECT

ALUMINIUM'S AMAZING CHARACTERISTICS
MAKE IT UNIQUELY QUALIFIED TO
CONTRIBUTE TO A SUSTAINABLE FUTURE



Endlessly recyclable

Aluminium can be recycled time and again with no downgrading of quality



Corrosion free and durable

A natural oxide layer protects the metal against corrosion and makes it virtually maintenance free, making it ideal for packaging, building and transport applications



Strong yet light

In combination with small quantities of alloying elements, provides same strength relative to weight ratio as advanced steels and titanium



Energy saver

Aluminium allows significant energy savings in many applications (e.g. lighter vehicles, energy efficient buildings, etc), whose recycling requires 95% less energy than primary production



Incredibly versatile

Easy to form, join and work with, thanks to its ductility, low melting point and lightness



Total barrier

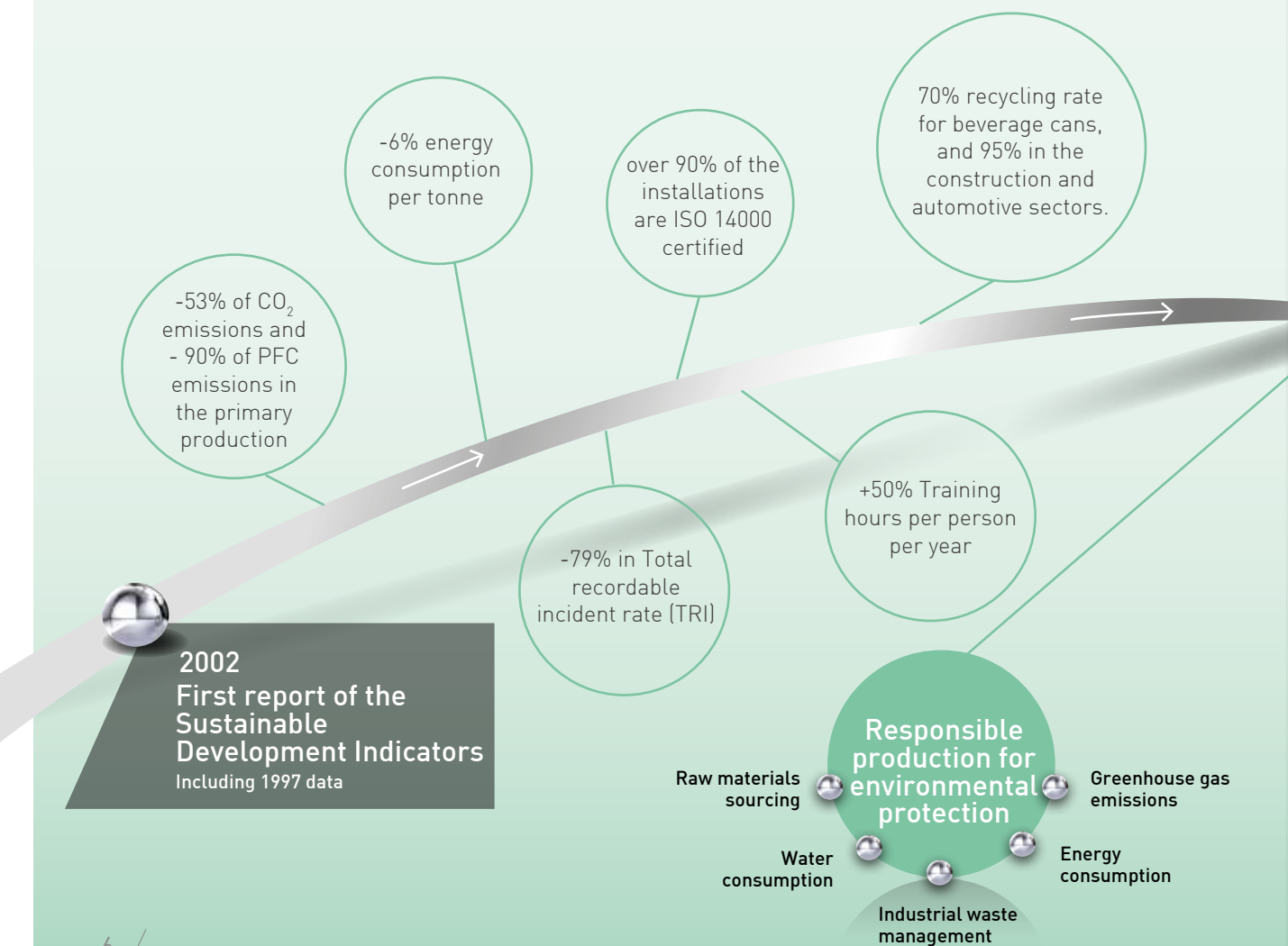
To light, gases, moisture and odourless, making it ideal for packing food, drinks, cosmetics, pharmaceuticals and other sensitive products.

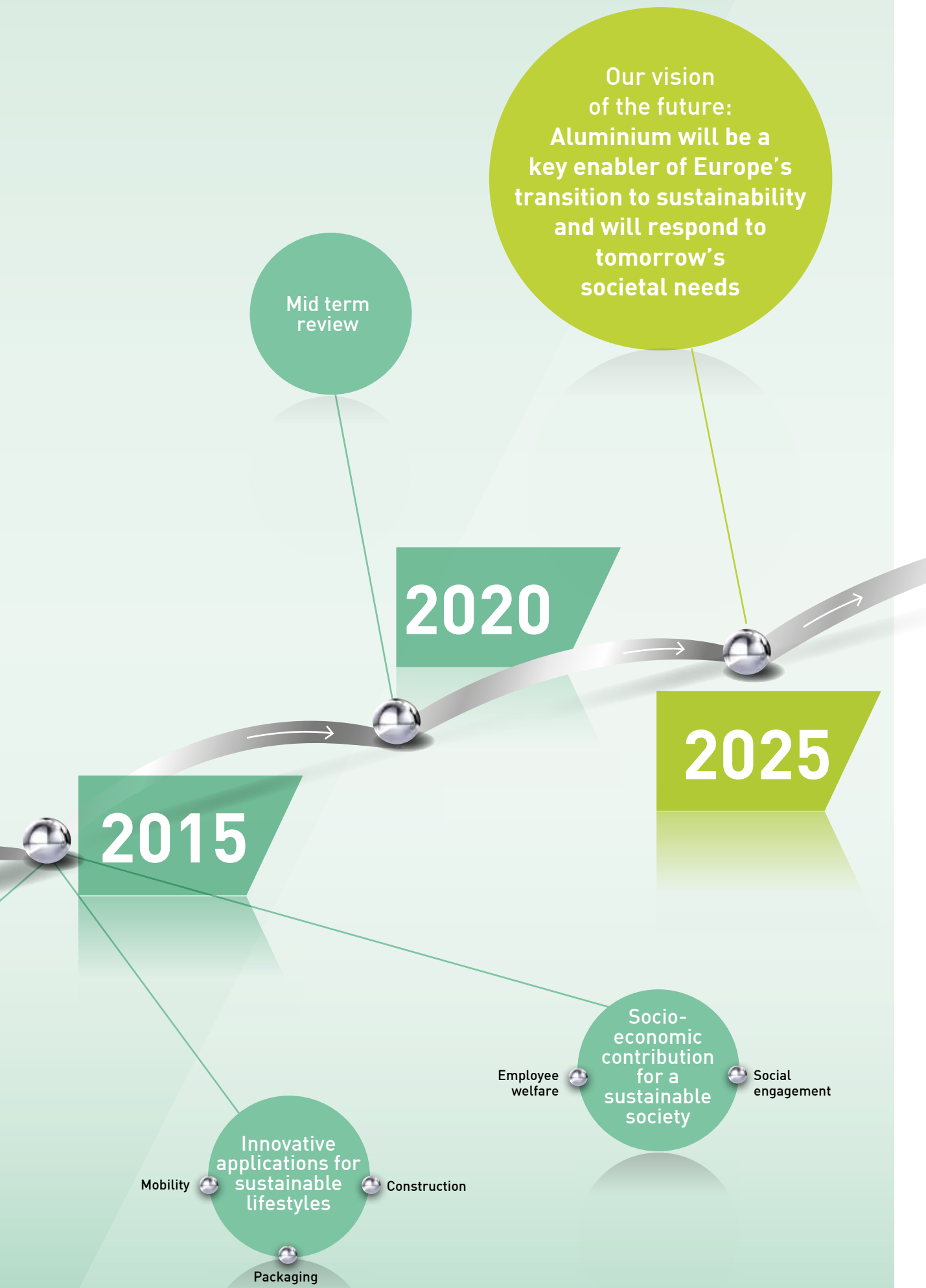
THE EUROPEAN ALUMINIUM INDUSTRY'S COMMITMENT

This Sustainability Roadmap takes a holistic approach in positioning aluminium to contribute to Europe's transition to a competitive, sustainable economy.

While the roadmap is comprehensive in scope, the commitments can be grouped under three main categories:

- / The first category is about responsible production for environmental protection and focuses on stewardship: traceability, resource and waste management, energy consumption and greenhouse gas emissions.
- / The second category is product-focused and concerns innovative applications of aluminium in transport, packaging, buildings and end-of-life management. The objective is to enable the Aluminium Effect whilst promoting full lifecycle design for a circular economy.
- / The third category is about aluminium's socio-economic contribution to society and focuses on employee-related commitments and broader society engagement.





01

RESPONSIBLE PRODUCTION FOR ENVIRONMENTAL PROTECTION

The European aluminium industry takes environmental stewardship very seriously. Reducing the environmental impact of the activities, resource and energy efficiency are among its strong commitments throughout the aluminium value chain - from bauxite and alumina, primary production through to semi-fabrication, end-use products and recycling.

This is reflected in an ambitious set of targets that the European aluminium industry is committed to achieving by 2025.

RAW MATERIALS AND SOURCING

Source raw materials responsibly, from an environmental, economic and social perspective, promoting traceability best practices.

How to get there:

European Aluminium and its members will:

- / Contribute to improving the available sourcing and traceability standards
- / Define a set of core criteria which all members will commit to applying, regardless of the chosen reporting standard, when sourcing raw materials from anywhere in the world, starting with the main flows (e.g. bauxite)

In line with the input received from the stakeholders consulted, European Aluminium and its members will further develop and detail the concept of “sustainable sourcing”.



/ OPERATIONS

Safeguard and protect the environment at all stages of the value chain, applying the Best Available Techniques.

Given their relevance, special focus will be given to:



WATER CONSUMPTION

Identify water-scarce areas and develop and implement specific water management programmes in these locations

How to get there:

European Aluminium and its members will:

- / Define a common approach to identifying water-scarce areas for the industry at global level, in cooperation with relevant organisations from other world regions
- / Develop sector guidelines on how to develop water management plans to be implemented in the identified water scarce areas



INDUSTRIAL WASTE MANAGEMENT

Reduce and recycle as much as possible industrial waste, and ban the landfill of recyclable hazardous industrial waste

How to get there:

European Aluminium and its members will:

- / Assess the main flows of hazardous wastes in the various segments of the value chain, identifying needs and treatment options, beyond legal requirements
- / Identify needs for dedicated projects and develop related milestones
- / Determine and implement solutions, technically and economically feasible, for recycling or minimising the waste generation



ENERGY CONSUMPTION

Reduce industrial energy consumption by 10%, per tonne of aluminium produced or transformed in Europe

How to get there:

European Aluminium and its members will:

- / Explore the margins for energy-saving of current technologies
- / Support the development of innovative technologies

Energy-saving is a driver of competitiveness, as electricity accounts for up to 40% of the costs of primary smelters in Europe. As base-load consumers, smelters facilitate the balancing of the grid and the deployment of renewable energy sources.



GREENHOUSE GAS EMISSIONS

Define together with key stakeholders a pathway towards the realisation of the industry's greenhouse gas reduction potential towards 2050¹.

The aluminium sector is not among the main direct emitters of greenhouse gases in Europe. For the primary segment, the cost of indirect emissions is about 7 times that of direct emissions.

How to get there:

European Aluminium and its members will:

- / Engage in demand-side management and capacity mechanisms, to improve the stability of the energy network and facilitate the introduction of renewable energy sources, thus contributing to the de-carbonisation of the energy supply
- / Advance R&D in breakthrough low-carbon production technologies and pilot advanced smelting technologies, to reduce the direct emissions

02

INNOVATIVE APPLICATIONS FOR SUSTAINABLE LIFESTYLES

Europe's sustainable future should be a high quality one. Aluminium improves lifestyles while minimising environmental impacts. And thanks to its amazing properties - what we call the Aluminium Effect - it is the material of choice for many applications. And no matter what we use it for, it can be recycled over and over again. Aluminium is endlessly recyclable, and recycling aluminium saves up to 95% energy compared to primary aluminium production.



/ PRODUCTS

Ensure the full use of the enabling properties of aluminium, whilst promoting full lifecycle design, including End of Life benefits, for a circular economy

Actively contribute to the phase-out of the landfilling of aluminium recyclable waste, by developing market-specific recycling action plans starting with the main markets in Europe

How to get there:

- / The overall goal for all products is to unleash the Aluminium Effect and support the circular economy, with specific targets set for the main applications

In line with the input received from stakeholders, European Aluminium and its members will carefully assess further applications of aluminium, with a view to further expanding the scope of the product dimension (e.g. mobility beyond cars, packaging beyond beverage cans, etc.) and establish partnerships across the value chain and with other sectors to create synergies.



MOBILITY

By virtue of its lightweight, crash energy absorptive and fully recyclable characteristics, aluminium shall enable Europe’s transition to low-carbon and safe mobility, representing the material of choice for design engineers of the future.

How to get there:

European Aluminium and its members will:

- / Develop, implement and monitor progress of aluminium recycling for the automotive industry, considering design for dismantling and recycling of aluminium parts and maximising the quantity & quality of recovered aluminium scrap
- / Facilitate the manufacture of even more fuel-efficient vehicles by engaging in EU research projects
- / Promote the use of aluminium in cars, trucks, buses, tramways, metros, railways, both for present and future powertrains, engaging with design engineers about how the Aluminium Effect can provide sustainable solutions
- / Reduce energy consumption and CO₂ emissions in transportation by advocating for improved vehicle efficiency standards, better and harmonized labelling and higher visibility and awareness of the weight of vehicles



BUILDINGS

By virtue of its high durability, design flexibility, lightweight and fully recyclable characteristics, aluminium shall be an essential component of energy efficient and sustainable buildings, both in residential and commercial sectors.

How to get there:

European Aluminium and its members will:

- / Develop, implement and monitor progress of aluminium recycling for the building industry, investigating the relevance of design for dismantling and recycling of aluminium products and maximising the quantity & quality of recovered aluminium scrap
- / Facilitate the development of new solutions further enhancing buildings’ energy efficiency, durability, comfort, safety and low maintenance requirements by engaging in EU research projects
- / Address the durability of aluminium product’s performance and its adaptation to climate change and ways of living with increasingly flexible solutions

- / Provide learning tools for the next generation of design engineers/architects & guide customers to optimised performance through the use of aluminium products
- / Feed knowledge into European legislation, standards and testings' harmonization processes



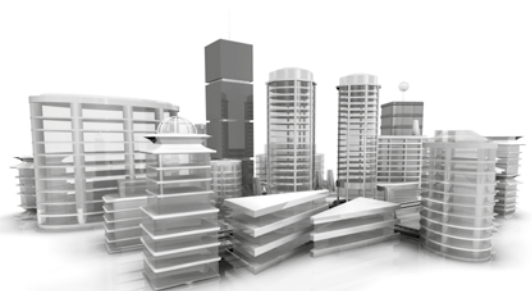
PACKAGING

By virtue of its high formability, lightweight, attractive metallic look, total barrier to light, gases, moisture and infinite recyclability, aluminium shall be one of the preferred packaging materials for food and drinks manufacturers, consumers and recyclers.

How to get there:

European Aluminium and its members will:

- / Contribute to achieving a 75% recycling rate of beverage cans by 2015 and 80% by 2020, focusing on 'out of home' consumption
- / Contribute to phasing out landfill of recyclable consumer packaging waste by 2025, improving quality and quantity of recycled material by improving the collection-sorting-recycling processes
- / Develop guidelines for post-consumer recycling of aluminium packaging waste
- / Promote the advantages of the various aluminium packaging items towards customers, end-consumers and future generations, in cooperation with canmakers and aluminium foil producers



03

SOCIO-ECONOMIC CONTRIBUTION FOR A SUSTAINABLE SOCIETY

The aluminium industry contributes €36.8 billion to the European economy and employs about 1 million people, both directly and indirectly. While innovative aluminium products enhance all of our lifestyles, and technological advances increase competitiveness of European companies, each specific production site has its own particular local value. Beginning with the employees, but reaching out to the wider community, the European aluminium industry is committed not only to health and safety, but to being a progressive and inclusive industry.

EMPLOYEE WELFARE



Establish programmes to attract and safeguard competence, ensure proper working conditions and secure employee development and diversity at all levels

How to get there:

European Aluminium and its members will:

- / Develop core criteria for technical, behavioural and managerial training programmes
- / Promote the exchange of best practices amongst members with a view to developing the knowledge base and safeguarding working conditions

European Aluminium and its members will define set of core ethical values for all members to subscribe

How to get there:

European Aluminium and its members will:

- / Identify a core set of criteria, based on established global best practices, which all members will subscribe to, covering both employees and contractors

Maintain the highest health and safety standards, aiming to safely send workers back to their homes after the working day and cutting the Total Recordable Incident rate² by 50%

How to get there:

European Aluminium and its members will:

- / Maintain a regular collection and distribution of health and safety statistics, including leading indicators and areas for improvement
- / Ensure the exchange of best practices, maintaining the Safety Solution Competition to encourage and award improvements across the whole value chain

**SOCIAL
ENGAGEMENT**



Ensure that each production facility has a programme in place for sharing value with the local community

How to get there:

European Aluminium and its members will:

- / Define a core set of criteria for value-sharing programmes, e.g. voluntary work initiatives, based on existing best practices
- / Foster the exchange of best practices, and organise an award ceremony to highlight great examples of value-sharing with the community

Building on the suggestions received from the stakeholders, European Aluminium and its members will work towards deepening the social dimension, incorporating CSR aspects in order to cover e.g. gender equality, human rights and international labour standards, seeking cooperation with relevant external stakeholders

INDUSTRY OVERVIEW

The aluminium value chain spans from alumina and primary production to semi-finished, end-use products and recycling. The good news is that demand for aluminium products continues to grow. The bad news is that European producers have to absorb higher compliance costs due to stricter climate change and energy regulation and because of decreasing availability of aluminium scrap in the EU. Europe's industry is fighting hard for its share of the global market and overall there are encouraging signs that the recovery from the economic crisis is underway.

ANNUAL TURNOVER *

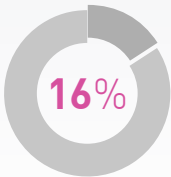
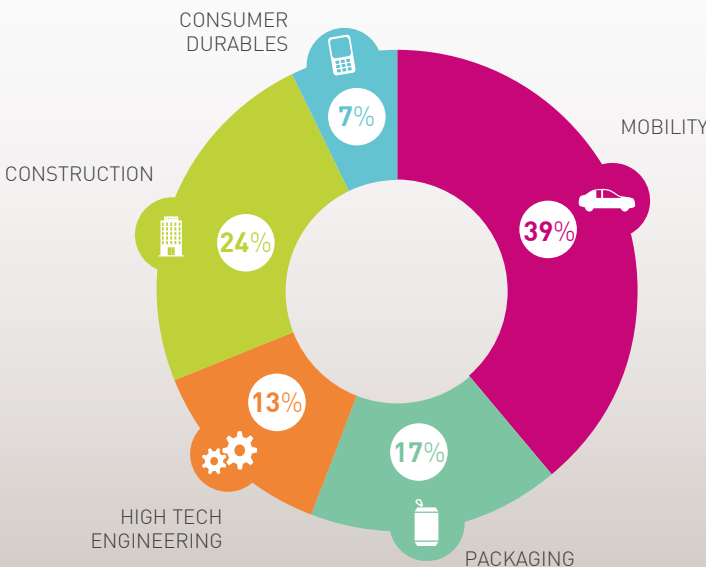
36.8 billion

1 million direct and indirect jobs

TONNES RECYCLED

4.3 million in 2013

MAIN END-USES FOR ALUMINIUM PRODUCTS IN EUROPE IN 2013



of the world's annual aluminium production is **made in Europe** *



of the European aluminium industry's output comes from **recycled sources** *

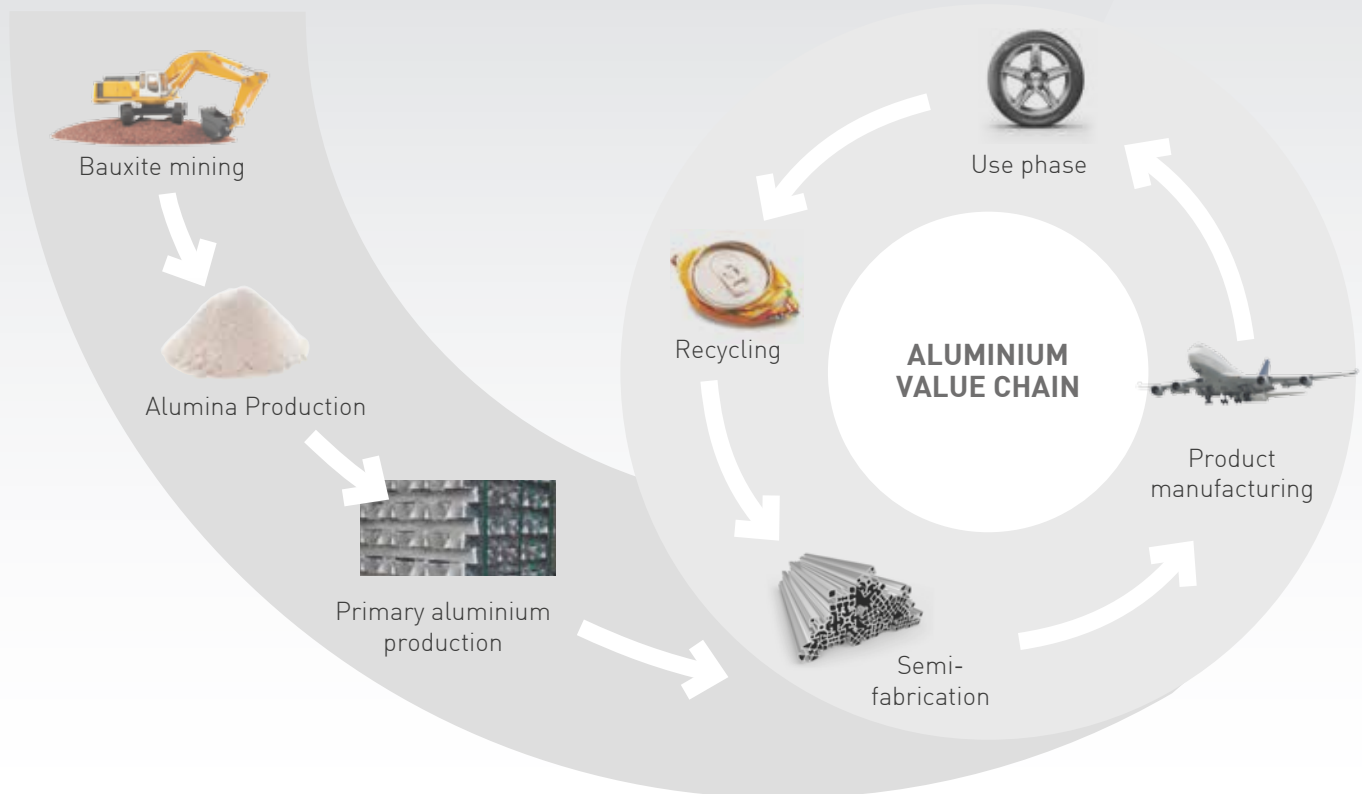
~600

plants in **30 European countries** (EU28 + EFTA and Turkey) *

95%

recycling saves 95% of the energy needed for the primary production

* EAA SDI leaflet 2012



Reducing the mass of a car by 100 kg saves **8g of CO₂ emissions** per kilometre



61% of the structure of the Airbus A380 is made from aluminium



Intelligent façades incorporating aluminium systems can **decrease energy consumption in buildings by up to 50%**



7 out of 10 aluminium beverage cans are recycled in Europe in 2012, avoiding more than 3.12 million tonnes of greenhouse gas emissions



Foil thicknesses have been reduced in the range of **28% to 40% in the last 30 years** without jeopardising the quality of the contents the foil protects

MORE USEFUL THAN EVER

x2

European consumption of aluminium is set to double between 2010 and 2050

(An aluminium 2050 roadmap to a low-carbon Europe - Lightening the load, EAA 2012.)

TRULY SUSTAINABLE

~75%

of the aluminium produced since it was first produced at industrial scale in 1886 is still in use

MEMBERS OF EUROPEAN ALUMINIUM





Credits photos: Alcoa, European Aluminium, HAI, Hydro, IAI, Fotolia.com
Design: inextremis.be



/ ABOUT EUROPEAN ALUMINIUM

European Aluminium, founded in 1981, is the association that represents the whole value chain of the aluminium industry in Europe. We actively engage with decision-makers and the wider stakeholder community to promote the outstanding properties of aluminium, secure growth and optimise the contribution our metal can make to meeting Europe's sustainability challenges. Through environmental and technical expertise, economic and statistical analysis, scientific research, education and sharing of best practices, public affairs and communication activities, European Aluminium promotes the use of aluminium as a permanent material that is part of the solution to achieving sustainable goals, while maintaining and improving the image of the industry, of the material and of its applications among their stakeholders.



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